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mizing the importance of the nucleus, he questions whether the organ he described in *Spirogyra* is BROWN's nucleus.⁶

SCHLEIDEN, intentionally or otherwise, does not mention this work of MEYEN in his *Phytogenesis* nor in the *Grundzüge*; he names BROWN the discoverer of the nucleus, and this statement in these widely circulated publications is to a great extent the source of the current opinion that BROWN gave the first description of the nucleus.—W. MARQUETTE, *University of Wisconsin, Madison, Wis.*

NUCLEAR PHENOMENA IN PUCCINIA PODOPHYLLI

(PRELIMINARY NOTE)

In the mycelium of *Puccinia Podophylli* which is to give rise to aecidia and spermagonia a binucleate condition prevails, the nuclei being associated in pairs and dividing conjugately throughout all parts of the mycelium, even before there is any indication of aecidium formation. This condition, however, is not constant. Uninucleate cells are occasionally observed, while those with more than two nuclei are very common.

The aecidium arises in a dense tangle of hyphae beneath the epidermis of the host. Certain cells in the midst of this tangle enlarge and become the "basal cells" of the aecidiospore chains. Whether any one of these cells is simply the enlarged termination of a hypha or is the product of the fusion of two cells, as originally described by CHRISTMAN for certain aecidia of the caeoma type, is not clear. Appearances have been observed which seem to indicate that such a fusion may occur, but any final conclusion upon this point is at present unwarranted. No migrations of nuclei between cells of the same or different hyphae can be recorded. The young basal cells contain two, three, or four nuclei, which at this stage become very large. The very frequent occurrence of four-nucleate basal cells upon a prevailingly binucleate mycelium is a further indication that such cells may not be of simple origin.

The aecidiospores, which are formed with intercalary cells in the usual manner, contain two, three, or four nuclei, depending upon the number contained in the basal cells from which they are derived. In older chains only two of the basal cell nuclei continue to function in this capacity, so that the binucleate spores finally far outnumber the others.

⁶ It is to be noted that vol. I of the Neues System der Pflanzen Physiologie was published a year earlier than SCHLEIDEN's *Phytogenesis*.

The nuclear phenomena in connection with spermatium formation have also been examined. The "basal cells" which bud off the spermatia contain one, two, or even three nuclei. These divide mitotically, providing nuclei for the successively abstricted spermatia. A constriction appears near the tip of the basal cell, and the nucleus passes through the narrow portion into the tip, after which the constriction becomes completed, cutting off a spermatium. In no case did the nucleus appear to be pinched into two parts by the constriction. The spermatia vary in length, some of them being more than three times as long as the diameter of the nucleus, so that they contain much besides nuclear material. In several two nuclei were observed.

A full description of the phenomena outlined above, with figures, will appear in a later paper, together with results of further investigation into the origin of the binucleate condition of the aecidial mycelium.—LESTER W. SHARP, *The University of Chicago*.